IN THE CLAIMS:

A. Please cancel claim 6 without prejudice or disclaimer.

B. Please amend claims 1, 8, 9, 13, 14, 16, 17, 18, 22 and 34-40 as follows:

Amended Claims With Mark-ups to Show Changes Made

1. (Thrice Amended) A method of establishing a communication channel between a base station and a mobile station, comprising:

(a) generating control signals and data signals within the communication channel, said control signals having a first sequence of L-bits and a second sequence of L-bits;

(b) autocorrelating the first and second sequences to generate first and second autocorrelated values;

(c) cross-correlating the first and second sequences to generate first and second cross-correlated values; and

(d) combining the first and second autocorrelated values and the first and second cross-correlated values, wherein the communication channel comprises a plurality of frames, each frame having L number of slots and each slot has N number of pilot bits such that there are N number of sequences of L-bits in a frame, said first and second sequences being sequences of the N number of sequences.

8. (Amended) The method of claim [6] 1, wherein between adjacent sequences, there are a prescribed number b_3 of bit values which are the same and there a prescribed number b_4 of bit values which are different such that b_3-b_4 is +1 or -1.

9. (Twice Amended) The method of claim [6] 1, wherein said control signals include a third sequence of L-bits and a fourth sequence of L-bits, and further comprising:

autocorrelating the third and fourth sequences to generate third and fourth autocorrelated values; and

cross-correlating the third and fourth sequences to generate third and fourth

cross-correlated values, wherein the combining step comprises combining the first, second, third and fourth autocorrelated values and the first, second, third and fourth cross-correlated values.

13. (Amended) A method of establishing a communication channel, the method comprising:

generating a plurality of frames; and

generating a 15 slots for each frame, each slot having a pilot signal of N-bits and a corresponding bit in each slot forming a word of 15 sequence of pilot bits such that there is N number of words, wherein the number of bit values of two pilot bits which are the same between two adjacent words from 1 to 15 slots minus the number of bit values of two pilot bits

which are different between the two adjacent words from 1 to 15 is +1 or –1, wherein the pilot bits are used in a communication system.

14. (Amended) A method of establishing a communication channel having at least one of frame synchronization and channel estimation, the method comprising:

generating a plurality of frames; and

generating a L-number of slots for each frame, each slot having a pilot signal of N-bits and a corresponding bit in each slot forming a word of L-sequence of pilot bits such that there is N number of words, wherein each of a prescribed number of N number of words have a first prescribed number (b_0) of bit values equal to "0" and a second prescribed number (b_1) of bit values equal to "1" such that b_1-b_0 is +1 or –1, wherein

a pair of the prescribed number of N number of words is cross-correlated, and a pair of the prescribed number of N number of words is autocorrelated, such that maximum peaks at zero and middle time shifts, which are equal to each other and opposite in polarity, are formed, wherein the pilot bits are used in a communication system.

16. (Amended) A method of generating pilot signals of a prescribed pattern within a frame having 15 slots, comprising:

generating N pilot bits for each slot; and

forming N words of 15-bit based on above step, wherein each of a prescribed number

of N words has a first prescribed number b_0 of bit values of "0" and a second prescribed number b_1 of bit values of "1", such that b_1-b_0 is +1 or –1, wherein the pilot signals are used in a communication system.

17. (Amended) A communication link between a user equipment and a base station comprising a plurality of layers, wherein one of the layers is a physical layer for establishing communication between the user equipment and the base station and the physical layer has at least one of data and control information, one of the control information being a pilot field of N-bits transmitted for 15 slots such that N words of 15 bits are formed, wherein a pair of N words is cross-correlated and a pair of N words is autocorrelated, wherein the pilot field of N-bits is used in a communication system.

18. (Amended) Pilot sequences for at least one of radio frame synchronization and channel estimation of a communication system comprising:

a first code sequence having a significant autocorrelation value at a matched point of a correlation period and having an insignificant autocorrelation value at the other points excluding the matched point; and,

a second code sequence having the same autocorrelation characteristic as the first selected code sequence, wherein

the first and second code sequences have a significant cross-correlation values having

polarity opposite to said significant autocorrelation value at a specific delay point, and the first and second code sequences are used in a communication system.

22. (Amended) Pilot sequences for at least one of frame synchronization and channel estimation of a wireless communication system comprising:

a first binary code sequence having a maximum autocorrelation value at a specific delay point of a correlation period and having a minimum autocorrelation value at the other points excluding the specific delay point; and

a second binary code sequence having the same autocorrelation characteristic as the first code sequence, wherein

the first and second binary code sequences have maximum autocorrelation values at the same specific delay point, and the first and second binary code sequences are used in a wireless communication system.

34. (Twice Amended) A frame structure for a communication system, each frame having 15 slots and each slot having N number of pilot bits, where $2 \leq N \leq 16$, such that there are N number of pilot bit patterns of 15 bits in the frame, wherein the improvement comprises N number of pilot bit patterns having at least one of the following pilot bit patterns:

Slot No 1 2 3 4.....15
Pilot bit pattern 1 = (1 0 0 0 1 1 1 1 0 1 0 1 1 0 0)
Pilot bit pattern 2 = (1 0 1 0 0 1 1 0 1 1 1 0 0 0 0)
Pilot bit pattern 3 = (1 1 0 0 0 1 0 0 1 1 0 1 0 1 1)
Pilot bit pattern 4 = (0 0 1 0 1 0 0 0 0 1 1 1 0 1 1)
Pilot bit pattern 5= (1 1 1 0 1 0 1 1 0 0 1 0 0 0 1)
Pilot bit pattern 6 = (1 1 0 1 1 1 0 0 0 0 1 0 1 0 0)
Pilot bit pattern 7 = (1 0 0 1 1 0 1 0 1 1 1 1 0 0 0)
Pilot bit pattern 8= (0 0 0 0 1 1 1 0 1 1 0 0 1 0 1)

wherein pilot bit patterns are used in a communication system.

35. (Twice Amended) A frame structure for an uplink Dedicated Physical Control Channel (DPCCH) in a communication system, wherein the improvement comprises each frame of the uplink DPCCH having 15 slots and N_{pilot} number of pilot bits in each slot, where $3 \leq N_{pilot} \leq 8$ and pilot bit patterns comprise at least one of the following based on N_{pilot} number of pilot bits:

	when $N_{pilot} = 5$					when $N_{pilot} = 6$					
Bit #	0	1	2	3	4	0	1	2	3	4	5
Slot #0	1	1	1	1	0	1	1	1	1	1	0
1	0	0	1	1	0	1	0	0	1	1	0
2	0	1	1	0	1	1	0	1	1	0	1
3	0	0	1	0	0	1	0	0	1	0	0
4	1	0	1	0	1	1	1	0	1	0	1
5	1	1	1	1	0	1	1	1	1	1	0
6	1	1	1	0	0	1	1	1	1	0	0
7	1	0	1	0	0	1	1	0	1	0	0
8	0	1	1	1	0	1	0	1	1	1	0
9	1	1	1	1	1	1	1	1	1	1	1
10	0	1	1	0	1	1	0	1	1	0	1
11	1	0	1	1	1	1	1	0	1	1	1
12	1	0	1	0	0	1	1	0	1	0	0
13	0	0	1	1	1	1	0	0	1	1	1
14	0	0	1	1	1	1	0	0	1	1	1

	when $N_{pilot} = 7$							when $N_{pilot} = 8$							
Bit #	0	1	2	3	4	5	6	0	1	2	3	4	5	6	7
Slot #0	1	1	1	1	1	0	1	1	1	1	1	1	1	1	0
1	1	0	0	1	1	0	1	1	0	1	0	1	1	1	0
2	1	0	1	1	0	1	1	1	0	1	1	1	0	1	1
3	1	0	0	1	0	0	1	1	0	1	0	1	0	1	0
4	1	1	0	1	0	1	1	1	1	1	0	1	0	1	1
5	1	1	1	1	1	0	1	1	1	1	1	1	1	1	0
6	1	1	1	1	0	0	1	1	1	1	1	1	0	1	0
7	1	1	0	1	0	0	1	1	1	1	0	1	0	1	0
8	1	0	1	1	1	0	1	1	0	1	1	1	1	1	0
9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10	1	0	1	1	0	1	1	1	0	1	1	1	0	1	1
11	1	1	0	1	1	1	1	1	1	1	0	1	1	1	1
12	1	1	0	1	0	0	1	1	1	1	0	1	0	1	0
13	1	0	0	1	1	1	1	1	0	1	0	1	1	1	1
14	1	0	0	1	1	1	1	1	0	1	0	1	1	1	1

wherein pilot bit patterns are used in a communication system.

36. (Twice Amended) A frame structure for a Random Access Channel (RACH) in a communication system, wherein the improvement comprises each frame of the RACH having 15 slots and N_{pilot} number of pilot bits in each slot, where N_{pilot}=8, and pilot bit patterns comprise:

	N_{pilot} = 8							
Bit #	0	1	2	3	4	5	6	7
Slot #0	1	1	1	1	1	1	1	0
1	1	0	1	0	1	1	1	0
2	1	0	1	1	1	0	1	1
3	1	0	1	0	1	0	1	0
4	1	1	1	0	1	0	1	1
5	1	1	1	1	1	1	1	0
6	1	1	1	1	1	0	1	0
7	1	1	1	0	1	0	1	0
8	1	0	1	1	1	1	1	0
9	1	1	1	1	1	1	1	1
10	1	0	1	1	1	0	1	1
11	1	1	1	0	1	1	1	1
12	1	1	1	0	1	0	1	0
13	1	0	1	0	1	1	1	1
14	1	0	1	0	1	1	1	1

wherein pilot bit patterns are used in a communication system.

37. (Twice Amended) A frame structure for a downlink Dedicated Physical Control Channel (DPCCH) in a communication system, wherein the improvement comprises each frame of the downlink DPCCH having 15 slots and N_{pilot} number of pilot bits in each slot, where $2 \leq N_{pilot} \leq 16$, and pilot bit patterns comprise at least one of the following based on N_{pilot} number of pilot bits:

	when $N_{pilot} = 2$	when $N_{pilot} = 4$		when $N_{pilot} = 8$				when $N_{pilot} = 16$							
Symbol #	0	0	1	0	1	2	3	0	1	2	3	4	5	6	7
Slot #0	11	11	11	11	11	11	10	11	11	11	10	11	11	11	10
1	00	11	00	11	00	11	10	11	00	11	10	11	11	11	00
2	01	11	01	11	01	11	01	11	01	11	01	11	10	11	00
3	00	11	00	11	00	11	00	11	00	11	00	11	01	11	10
4	10	11	10	11	10	11	01	11	10	11	01	11	11	11	11
5	11	11	11	11	11	11	10	11	11	11	10	11	01	11	01
6	11	11	11	11	11	11	00	11	11	11	00	11	10	11	11
7	10	11	10	11	10	11	00	11	10	11	00	11	10	11	00
8	01	11	01	11	01	11	10	11	01	11	10	11	00	11	11
9	11	11	11	11	11	11	11	11	11	11	11	11	00	11	11
10	01	11	01	11	01	11	01	11	01	11	01	11	11	11	10
11	10	11	10	11	10	11	11	11	10	11	11	11	00	11	10
12	10	11	10	11	10	11	00	11	10	11	00	11	01	11	01
13	00	11	00	11	00	11	11	11	00	11	11	11	00	11	00
14	00	11	00	11	00	11	11	11	00	11	11	11	10	11	01

wherein pilot bit patterns are used in a communication system.

38. (Twice Amended) A frame structure for a downlink Dedicated Physical Control Channel (DPCCH) using Space Time Transmit Diversity (STTD) encoding in a communication system, wherein the improvement comprises each frame of the downlink DPCCH having 15 slots and N_{pilot} number of pilot bits in each slot, where $2 \leq N_{pilot} \leq 16$, and pilot bit patterns comprise at least one of the following based on N_{pilot} number of pilot bits:

	when N_{pilot} = 4		when N_{pilot} = 8				when N_{pilot} = 16							
Symbol #	0	1	0	1	2	3	0	1	2	3	4	5	6	7
Slot #0	01	10	11	00	00	10	11	00	00	10	11	00	00	10
1	10	10	11	00	00	01	11	00	00	01	11	10	00	10
2	11	10	11	11	00	00	11	11	00	00	11	10	00	11
3	10	10	11	10	00	01	11	10	00	01	11	00	00	00
4	00	10	11	10	00	11	11	11	00	11	11	01	00	10
5	01	10	11	00	00	10	11	00	00	10	11	11	00	00
6	01	10	11	10	00	10	11	10	00	10	11	01	00	11
7	00	10	11	10	00	11	11	10	00	11	11	10	00	11
8	11	10	11	00	00	00	11	00	00	00	11	01	00	01
9	01	10	11	01	00	10	11	01	00	10	11	01	00	01
10	11	10	11	11	00	00	11	11	00	00	11	00	00	10
11	00	10	11	01	00	11	11	01	00	11	11	00	00	01
12	00	10	11	10	00	11	11	10	00	11	11	11	00	00
13	10	10	11	01	00	01	11	01	00	01	11	10	00	01
14	10	10	11	01	00	01	11	01	00	01	11	11	00	11

wherein pilot bit patterns are used in a communication system.

39. (Twice Amended) A frame structure for a Secondary Common Control Physical Channel (S-CCPCH) in a communication system, wherein the improvement comprises each frame of the S-CCPCH having 15 slots and N_{pilot} number of pilot bits in each slot, where $8 \leq N_{pilot} \leq 16$, and pilot bit patterns comprise at least one of the following based on N_{pilot} number of pilot bits:

	when N_{pilot} = 8				when N_{pilot} = 16							
Symbol #	0	1	2	3	0	1	2	3	4	5	6	7
Slot #0	11	11	11	10	11	11	11	0	11	11	11	10
1	11	00	11	10	11	00	11	10	11	11	11	00
2	11	01	11	01	11	01	11	01	11	10	11	00
3	11	00	11	00	11	00	11	00	11	01	11	10
4	11	10	11	01	11	10	11	01	11	11	11	11
5	11	11	11	10	11	11	11	10	11	01	11	01
6	11	11	11	00	11	11	11	00	11	10	11	11
7	11	10	11	00	11	10	11	00	11	10	11	00
8	11	01	11	10	11	01	11	10	11	00	11	11
9	11	11	11	11	11	11	11	11	11	00	11	11
10	11	01	11	01	11	01	11	01	11	11	11	10
11	11	10	11	11	11	10	11	11	11	00	11	10
12	11	10	11	00	11	10	11	00	11	01	11	01
13	11	00	11	11	11	00	11	11	11	00	11	00
14	11	00	11	11	11	00	11	11	11	10	11	01

wherein pilot bit patterns are used in a communication system.

40. (Twice Amended) A frame structure for a Secondary Common Control Physical Channel (S-CCPCH) using Space Time Transmit Diversity (STTD) encoding in a communication system, wherein the improvement comprises each frame of the S-CCPCH having 15 slots and N_{pilot} number of pilot bits in each slot, where $8 \leq N_{pilot} \leq 16$, and pilot bit patterns comprise at least one of the following based on N_{pilot} number of pilot bits:

	$N_{pilot} = 8$				$N_{pilot} = 16$							
Symbol #	0	1	2	3	0	1	2	3	4	5	6	7
Slot #0	11	00	00	10	11	00	00	10	11	00	00	10
1	11	00	00	01	11	00	00	01	11	10	00	10
2	11	11	00	00	11	11	00	00	11	10	00	11
3	11	10	00	01	11	10	00	01	11	00	00	00
4	11	11	00	11	11	11	00	11	11	01	00	10
5	11	00	00	10	11	00	00	10	11	11	00	00
6	11	10	00	10	11	10	00	10	11	01	00	11
7	11	10	00	11	11	10	00	11	11	10	00	11
8	11	00	00	00	11	00	00	00	11	01	00	01
9	11	01	00	10	11	01	00	10	11	01	00	01
10	11	11	00	00	11	11	00	00	11	00	00	10
11	11	01	00	11	11	01	00	11	11	00	00	01
12	11	10	00	11	11	10	00	11	11	11	00	00
13	11	01	00	01	11	01	00	01	11	10	00	01
14	11	01	00	01	11	01	00	01	11	11	00	11

wherein pilot bit patterns are used in a communication system.

Clean Set of Amended Claims

1. (Thrice Amended) A method of establishing a communication channel between a base station and a mobile station, comprising:

(a) generating control signals and data signals within the communication channel, said control signals having a first sequence of L-bits and a second sequence of L-bits;

(b) autocorrelating the first and second sequences to generate first and second autocorrelated values;

(c) cross-correlating the first and second sequences to generate first and second cross-correlated values; and

(d) combining the first and second autocorrelated values and the first and second cross-correlated values, wherein the communication channel comprises a plurality of frames, each frame having L number of slots and each slot has N number of pilot bits such that there are N number of sequences of L-bits in a frame, said first and second sequences being sequences of the N number of sequences.

~~8.~~ 7 (Amended) The method of claim 1, wherein between adjacent sequences, there are a prescribed number b_3 of bit values which are the same and there a prescribed number b_4 of bit values which are different such that b_3-b_4 is +1 or -1.

8
9. (Twice Amended) The method of claim 1, wherein said control signals include a third sequence of L-bits and a fourth sequence of L-bits, and further comprising:

autocorrelating the third and fourth sequences to generate third and fourth autocorrelated values; and

cross-correlating the third and fourth sequences to generate third and fourth cross-correlated values, wherein the combining step comprises combining the first, second, third and fourth autocorrelated values and the first, second, third and fourth cross-correlated values.

12
13. (Amended) A method of establishing a communication channel, the method comprising:

generating a plurality of frames; and

generating a 15 slots for each frame, each slot having a pilot signal of N-bits and a corresponding bit in each slot forming a word of 15 sequence of pilot bits such that there is N number of words, wherein the number of bit values of two pilot bits which are the same between two adjacent words from 1 to 15 slots minus the number of bit values of two pilot bits which are different between the two adjacent words from 1 to 15 is +1 or –1, wherein the pilot bits are used in a communication system.

13
14. (Amended) A method of establishing a communication channel having at least one of frame synchronization and channel estimation, the method comprising:

generating a plurality of frames; and

generating a L-number of slots for each frame, each slot having a pilot signal of N-bits and a corresponding bit in each slot forming a word of L-sequence of pilot bits such that there is N number of words, wherein each of a prescribed number of N number of words have a first prescribed number (b_0) of bit values equal to "0" and a second prescribed number (b_1) of bit values equal to "1" such that b_1-b_0 is +1 or –1, wherein

a pair of the prescribed number of N number of words is cross-correlated, and a pair of the prescribed number of N number of words is autocorrelated, such that maximum peaks at zero and middle time shifts, which are equal to each other and opposite in polarity, are formed, wherein the pilot bits are used in a communication system.

15. (Amended) A method of generating pilot signals of a prescribed pattern within a frame having 15 slots, comprising:

generating N pilot bits for each slot; and

forming N words of 15-bit based on above step, wherein each of a prescribed number of N words has a first prescribed number b_0 of bit values of "0" and a second prescribed number b_1 of bit values of "1", such that b_1-b_0 is +1 or –1, wherein the pilot signals are used in a communication system.

16. (Amended) A communication link between a user equipment and a base station comprising a plurality of layers, wherein one of the layers is a physical layer for

establishing communication between the user equipment and the base station and the physical layer has at least one of data and control information, one of the control information being a pilot field of N-bits transmitted for 15 slots such that N words of 15 bits are formed, wherein a pair of N words is cross-correlated and a pair of N words is autocorrelated, wherein the pilot field of N-bits is used in a communication system.

17. ~~16.~~ (Amended) Pilot sequences for at least one of radio frame synchronization and channel estimation of a communication system comprising:

a first code sequence having a significant autocorrelation value at a matched point of a correlation period and having an insignificant autocorrelation value at the other points excluding the matched point; and,

a second code sequence having the same autocorrelation characteristic as the first selected code sequence, wherein

the first and second code sequences have a significant cross-correlation values having polarity opposite to said significant autocorrelation value at a specific delay point, and the first and second code sequences are used in a communication system.

21 ~~22.~~ (Amended) Pilot sequences for at least one of frame synchronization and channel estimation of a wireless communication system comprising:

a first binary code sequence having a maximum autocorrelation value at a specific delay point of a correlation period and having a minimum autocorrelation value at the other points excluding the specific delay point; and

a second binary code sequence having the same autocorrelation characteristic as the first code sequence, wherein

the first and second binary code sequences have maximum autocorrelation values at the same specific delay point, and the first and second binary code sequences are used in a wireless communication system.

33~~34~~. (Twice Amended) A frame structure for a communication system, each frame having 15 slots and each slot having N number of pilot bits, where 2≤ N≤ 16, such that there are N number of pilot bit patterns of 15 bits in the frame, wherein the improvement comprises N number of pilot bit patterns having at least one of the following pilot bit patterns:

Slot No 1 2 3 4.....15
Pilot bit pattern 1 = (1 0 0 0 1 1 1 1 0 1 0 1 1 0 0)
Pilot bit pattern 2 = (1 0 1 0 0 1 1 0 1 1 1 0 0 0 0)
Pilot bit pattern 3 = (1 1 0 0 0 1 0 0 1 1 0 1 0 1 1)
Pilot bit pattern 4 = (0 0 1 0 1 0 0 0 0 1 1 1 0 1 1)
Pilot bit pattern 5= (1 1 1 0 1 0 1 1 0 0 1 0 0 0 1)
Pilot bit pattern 6 = (1 1 0 1 1 1 0 0 0 0 1 0 1 0 0)
Pilot bit pattern 7 = (1 0 0 1 1 0 1 0 1 1 1 1 0 0 0)
Pilot bit pattern 8= (0 0 0 0 1 1 1 0 1 1 0 0 1 0 1)

wherein pilot bit patterns are used in a communication system.

34

35. (Twice Amended) A frame structure for an uplink Dedicated Physical Control Channel (DPCCH) in a communication system, wherein the improvement comprises each frame of the uplink DPCCH having 15 slots and N_{pilot} number of pilot bits in each slot, where $3 \leq N_{pilot} \leq 8$ and pilot bit patterns comprise at least one of the following based on N_{pilot} number of pilot bits:

	when N_{pilot} = 5					when N_{pilot} = 6					
Bit #	0	1	2	3	4	0	1	2	3	4	5
Slot #0	1	1	1	1	0	1	1	1	1	1	0
1	0	0	1	1	0	1	0	0	1	1	0
2	0	1	1	0	1	1	0	1	1	0	1
3	0	0	1	0	0	1	0	0	1	0	0
4	0	0	1	0	1	1	0	0	1	0	1
5	1	1	1	1	0	1	1	1	1	1	0
6	1	1	1	0	0	1	1	1	1	0	0
7	1	0	1	1	0	1	1	0	1	1	0
8	0	1	1	1	0	1	0	1	1	1	0
9	1	1	1	1	1	1	1	1	1	1	1
10	0	1	1	0	1	1	0	1	1	0	1
11	1	0	1	1	1	1	1	0	1	1	1
12	1	0	1	0	0	1	1	0	1	0	0
13	0	0	1	1	1	1	0	0	1	1	1
14	0	0	1	1	1	1	0	0	1	1	1

	when N_{pilot} = 7							when N_{pilot} = 8							
Bit #	0	1	2	3	4	5	6	0	1	2	3	4	5	6	7
Slot	1	1	1	1	1	0	1	1	1	1	1	1	1	1	0
#0	1	0	0	1	1	0	1	1	0	1	0	1	1	1	0
1	1	0	1	1	0	1	1	1	0	1	1	1	0	1	1
2	1	0	0	1	0	0	1	1	0	1	0	1	0	1	0
3	1	1	0	1	0	1	1	1	1	1	0	1	0	1	1
4	1	1	1	1	1	0	1	1	1	1	1	1	1	1	0
5	1	1	1	1	0	1	1	1	1	1	1	1	0	1	0
6	1	1	0	1	0	0	1	1	1	1	0	1	0	1	0
7	1	0	1	1	1	0	1	1	0	1	1	1	1	1	0
8	1	0	1	1	1	1	1	1	0	1	1	1	1	1	1
9	1	0	1	1	0	1	1	1	0	1	1	1	0	1	1
10	1	1	0	1	1	0	1	1	1	1	0	1	1	1	1
11	1	1	0	1	0	1	1	1	1	1	0	1	0	1	0
12	1	0	0	1	1	1	1	1	0	1	0	1	1	1	1
13	1	0	0	1	1	1	1	1	0	1	0	1	1	1	1
14															

wherein pilot bit patterns are used in a communication system.

35. (Twice Amended) A frame structure for a Random Access Channel (RACH) in a communication system, wherein the improvement comprises each frame of the RACH having 15 slots and N_{pilot} number of pilot bits in each slot, where N_{pilot}=8, and pilot bit patterns comprise:

	N_{pilot} = 8							
Bit #	0	1	2	3	4	5	6	7
Slot								
#0	1	1	1	1	1	1	1	0
1	1	0	1	0	1	1	1	0
2	1	0	1	1	1	0	1	1
3	1	0	1	0	1	0	1	0
4	1	1	1	1	1	1	1	1
5	1	1	1	1	1	0	1	0
6	1	1	1	0	1	0	1	0
7	1	0	1	1	1	1	1	0
8	1	1	1	1	1	1	1	1
9	1	0	1	1	1	0	1	1
10	1	1	1	0	1	1	1	1
11	1	1	1	0	1	0	1	0
12	1	0	1	0	1	1	1	1
13	1	0	1	0	1	1	1	1
14								

wherein pilot bit patterns are used in a communication system.

36. (Twice Amended) A frame structure for a downlink Dedicated Physical Control Channel (DPCCH) in a communication system, wherein the improvement comprises each frame of the downlink DPCCH having 15 slots and N_{pilot} number of pilot bits in each slot, where $2 \leq N_{pilot} \leq 16$, and pilot bit patterns comprise at least one of the following based on N_{pilot} number of pilot bits:

	when N_{pilot} = 2	when N_{pilot} = 4		when N_{pilot} = 8				when N_{pilot} = 16							
Symbol #	0	0	1	0	1	2	3	0	1	2	3	4	5	6	7
Slot #0	11	11	11	11	11	11	10	11	11	11	10	11	11	11	10
1	00	11	00	11	00	11	10	11	00	11	10	11	11	11	00
2	01	11	01	11	01	11	01	11	01	11	01	11	10	11	00
3	00	11	00	11	00	11	00	11	00	11	00	11	01	11	10
4	10	11	10	11	10	11	01	11	10	11	01	11	11	11	11
5	11	11	11	11	11	11	10	11	11	11	10	11	01	11	01
6	11	11	11	11	11	11	00	11	11	11	00	11	10	11	11
7	10	11	10	11	10	11	00	11	10	11	00	11	10	11	00
8	01	11	01	11	01	11	10	11	01	11	10	11	00	11	11
9	11	11	11	11	11	11	11	11	11	11	11	11	00	11	11
10	01	11	01	11	01	11	01	11	01	11	01	11	11	11	10
11	10	11	10	11	10	11	11	11	10	11	11	11	00	11	10
12	10	11	10	11	10	11	00	11	10	11	00	11	01	11	01
13	00	11	00	11	00	11	11	11	00	11	11	11	00	11	00
14	00	11	00	11	00	11	11	11	00	11	11	11	10	11	01

wherein pilot bit patterns are used in a communication system.

82

37. (Twice Amended) A frame structure for a downlink Dedicated Physical Control Channel (DPCCH) using Space Time Transmit Diversity (STTD) encoding in a communication system, wherein the improvement comprises each frame of the downlink DPCCH having 15 slots and N_{pilot} number of pilot bits in each slot, where $2 \leq N_{pilot} \leq 16$, and pilot bit patterns comprise at least one of the following based on N_{pilot} number of pilot bits:

	w hen N_{pilot} = 4		when N_{pilot} = 8				when N_{pilot} = 16							
S ymbol #	0	1	0	1	2	3	0	1	2	3	4	5	6	7
S lot #0	01	10	11	00	00	10	11	00	00	10	11	00	00	10
1	10	10	11	00	00	01	11	00	00	01	11	10	00	10
2	11	10	11	11	00	00	11	11	00	00	11	10	00	11
3	10	10	11	10	00	01	11	10	00	01	11	00	00	00
4	00	10	11	11	00	11	11	11	00	11	11	01	00	10
5	01	10	11	00	00	10	11	00	00	10	11	11	00	00
6	00	10	11	10	00	11	11	10	00	11	11	01	00	11
7	11	10	11	00	00	00	11	00	00	00	11	10	00	11
8	01	10	11	01	00	10	11	01	00	10	11	00	00	11
9	11	10	11	11	00	00	11	11	00	00	11	01	00	01
1 0	00	10	11	01	00	11	11	01	00	11	11	00	00	01
1 1	00	10	11	10	00	11	11	10	00	11	11	11	00	00
1 2	10	10	11	01	00	01	11	01	00	01	11	10	00	01
1 3	10	10	11	01	00	01	11	01	00	01	11	11	00	11
1 4														

wherein pilot bit patterns are used in a communication system.

39. (Twice Amended) A frame structure for a Secondary Common Control Physical Channel (S-CCPCH) in a communication system, wherein the improvement comprises each frame of the S-CCPCH having 15 slots and N_{pilot} number of pilot bits in each slot, where $8 \leq N_{pilot} \leq 16$, and pilot bit patterns comprise at least one of the following based on N_{pilot} number of pilot bits:

	when N_{pilot} = 8				when N_{pilot} = 16							
Symbol #	0	1	2	3	0	1	2	3	4	5	6	7
Slot #0	11	11	11	10	11	11	11	10	11	11	11	10
1	11	00	11	10	11	00	11	10	11	11	11	00
2	11	01	11	01	11	01	11	01	11	10	11	00
3	11	00	11	00	11	00	11	00	11	01	11	10
4	11	10	11	01	11	10	11	01	11	11	11	11
5	11	11	11	10	11	11	11	10	11	01	11	01
6	11	11	11	00	11	01	11	00	11	10	11	11
7	11	10	11	00	11	10	11	00	11	10	11	00
8	11	01	11	10	11	01	11	10	11	00	11	11
9	11	11	11	11	11	11	11	11	11	00	11	11
10	11	01	11	01	11	01	11	01	11	11	11	10
11	11	10	11	11	11	10	11	11	11	00	11	10
12	11	10	11	00	11	10	11	00	11	01	11	01
13	11	00	11	11	11	00	11	11	11	00	11	00
14	11	00	11	11	11	00	11	11	11	10	11	01

wherein pilot bit patterns are used in a communication system.

39. (Twice Amended) A frame structure for a Secondary Common Control Physical Channel (S-CCPCH) using Space Time Transmit Diversity (STTD) encoding in a communication system, wherein the improvement comprises each frame of the S-CCPCH having 15 slots and N_{pilot} number of pilot bits in each slot, where $8 \leq N_{pilot} \leq 16$, and pilot bit patterns comprise at least one of the following based on N_{pilot} number of pilot bits:

	$N_{pilot} = 8$				$N_{pilot} = 16$							
Symbol #	0	1	2	3	0	1	2	3	4	5	6	7
Slot #0	11	00	00	10	11	00	00	10	11	00	00	10
1	11	00	00	01	11	00	00	01	11	10	00	10
2	11	11	00	00	11	11	00	00	11	10	00	11
3	11	10	00	01	11	10	00	01	11	00	00	00
4	11	11	00	11	11	11	00	11	11	01	00	10
5	11	00	00	10	11	00	00	10	11	11	00	00
6	11	10	00	10	11	10	00	10	11	01	00	11
7	11	10	00	11	11	10	00	11	11	10	00	11
8	11	00	00	00	11	00	00	00	11	01	00	01
9	11	01	00	10	11	01	00	10	11	01	00	01
10	11	11	00	00	11	11	00	00	11	00	00	10
11	11	01	00	11	11	01	00	11	11	00	00	01
12	11	10	00	11	11	10	00	11	11	11	00	00
13	11	01	00	01	11	01	00	01	11	10	00	01
14	11	01	00	01	11	01	00	01	11	11	00	11

wherein pilot bit patterns are used in a communication system.